



John R. Kasich, Governor  
Mary Taylor, Lt. Governor  
Scott J. Nally, Director

June 26, 2013

Notice of Issuance of a Limited Environmental Review and Final Finding of No Significant Impact to All Interested Citizens, Organizations, and Government Agencies

Akron Chlorine Dioxide Feed System Improvements (CS390095-0067)  
and  
High Service Pumps Variable Frequency Drive Installation (CS390095-0073)

The purpose of this notice is to advise the public that Ohio EPA has reviewed the referenced projects and finds neither an Environmental Assessment (EA) nor a Supplemental Study (SS) is required to implement the projects as discussed in the attached Limited Environmental Review (LER). Therefore, a Finding of No Significant Impact is being issued for this project.

The Drinking Water Assistance Fund program requires the inclusion of environmental factors in the decision-making process for project approval. Ohio EPA has done this by incorporating a detailed analysis of the environmental effects of the proposed action in its review and approval process. Environmental information was developed as part of the facilities plan, as well as through the facilities plan review process. A subsequent review by this Agency has found that the proposed action does not require the preparation of either an EA or an SS.

Our environmental review concluded that because the proposed projects are limited in scope and meet all applicable criteria, a Limited Environmental Review is warranted. Specifically, the proposed improvements to the Akron WTP are a "minor upgrading of existing treatment works" and "construction of new ancillary facilities adjacent or appurtenant to existing facilities."

The proposed projects:

- have no significant environmental effect;
- do not require extensive specific impact mitigation;
- have no effect on high value environmental resources;
- are cost effective;
- are not controversial actions;
- do not create a new, or relocate an existing discharge to surface or ground waters;
- do not create a new source of water withdrawals from either surface or ground waters, or significantly increase the amount of water withdrawn from an existing water source;

- will not result in substantial increases in the volume of discharge or the loading of pollutants from an existing source or from new facilities to receiving waters; and
- will not provide capacity to serve a population substantially greater than the existing population.

The LER presents additional information on the proposed projects, costs, and basis for our decision. Further information can be obtained by calling or writing the contact person named at the end of the LER.

Upon issuance of this determination, loan award may proceed without being subject to further environmental review or public comment, unless information is provided which determines that environmental conditions on the proposed projects have changed significantly.

Sincerely,

A handwritten signature in blue ink, appearing to read "Alauddin A. Alauddin".

Alauddin A. Alauddin, Acting Chief  
Division of Environmental and Financial Assistance

AAA/DH

c: Debbie Nicholas, NEDO-DDAGW  
Sue Farmer, OWDA  
File (2)

## LIMITED ENVIRONMENTAL REVIEW

### A. Project Identification

Project Name: Akron Chlorine Dioxide Feed System Improvements (CS390095-0067)  
and High Service Pumps Variable Frequency Drive Installation  
(CS390095-0073)

Address: Randall Keirns  
City of Akron Engineering Bureau  
166 South High Street, 7<sup>th</sup> Floor  
Akron, OH 44308

### B. History and Existing Conditions

The City of Akron Water Treatment Plant (WTP), dating to 1915, treats approximately 35 million gallons of water per day from the Upper Cuyahoga River in Portage County. Fed by three reservoirs with a total capacity of 10 billion gallons, the facility provides water to approximately 300,000 customers in Akron and surrounding communities in Summit County.

The water treatment process includes coagulation (to form clumps of suspended materials – “turbidity” - in the reservoir water so the clumps will settle by gravity) followed by rapid sand filtration and addition of fluoride for dental health and chlorine dioxide for disinfection. The oxidizing ability of chlorine dioxide that makes it an effective disinfectant also oxidizes floating and suspended particles, thereby enhancing coagulation and the removal of turbidity, which can be a significant problem in warm weather when algae increase. Raw water flows by gravity from the adjacent Lake Rockwell through the treatment system and filters and into the one million gallon pumping well under the high service pump building.

As part of ongoing treatment and delivery upgrades, Akron has identified a need for pre-treatment oxidation and has identified inefficiencies in the pumps that send water from the plant to the distribution system.

Initially, Akron evaluated the following alternatives for generating, storing, and delivering chlorine dioxide at the WTP.

The “three chemical reaction” in use at the plant combines sodium chlorite, sodium hypochlorite, and hydrochloric acid. Current capacity of 1,000 pounds per day would be inadequate when the plant operates at capacity (a second system would be required); otherwise, this system is cost-effective (\$60,000 per day) and familiar to staff.

The “two chemical reaction” uses Purate (sodium chlorate/hydrogen peroxide) and sulfuric acid at relatively low cost (\$80,000 for 840 pounds per day, \$90,000 for 2,000

pounds per day required for eventual full capacity). Conversion to this system would require additional chlorine dioxide solution storage capacity.

The “electrochemical reaction” of sodium chlorite produces high-purity chlorine dioxide and a byproduct of marketable caustic soda at the highest capital cost due to low daily output (100 pounds per day).

The current chlorine dioxide storage tank is sufficient if either the three-chemical generation or electrochemical generation process is chosen. A larger tank would be needed if the two-chemical generation option is chosen.

A 2-inch diameter pipe can carry the facility’s required chlorine dioxide volume if the solution concentration is greater than 2,100 parts per million. A more dilute solution would require a 3-inch line.

Akron also evaluated two alternative routes for the chlorine dioxide piping from the WTP to the gravity-fed raw water intake in Lake Rockwell, selecting the route that would be least affected by existing surface infrastructure (county road, railroad, sludge lagoon dike) and underground utilities (raw water pipe).

To send water from the plant to customers, six vertical-turbine high-service pumps, two of them being 700 horsepower (HP) pumps and the other four being 1,250 HP pumps, push treated water to the storage and distribution system. Operators manually start and stop the high service pumps that now operate at only one speed, based on water demand. Starting and stopping pumps stresses the pumps, piping, and electrical equipment and disturbs operation of the sand filters.

Recent hydraulic analysis of the pumps shows the normal operation of the 1,250 HP pumps is near their highest efficiency. The 700 HP pumps, however, are less efficient at normal operation. Installation of variable frequency drives (VFDs) on the 700 HP pumps would significantly increase their efficiency by allowing a range of operating speeds as water demand varies throughout the day. VFDs for the 700 HP pumps are smaller and cost less than equivalent units for the larger pumps.

Benefits of adding VFDs to the 700 HP high-service pumps include reduced mechanical and electrical equipment stress by eliminating starting and stopping the pumps as water demand varies; reduced filtration turbidity; reduced filter turbidity by eliminating flow fluctuations; and reduced electricity costs from higher motor efficiency.

### C. Project Description

These two projects will:

- replace the existing three-chemical chlorine dioxide generation equipment with a new three-chemical generation system;
- install 2-inch diameter piping to carry the chlorine dioxide from the WTP to the water intake in Lake Rockwell to improve pretreatment and meet current and

- future water quality regulations; and
- install variable frequency drives on large pump motors in a new building addition at the WTP to improve operational efficiency (Figure 1).

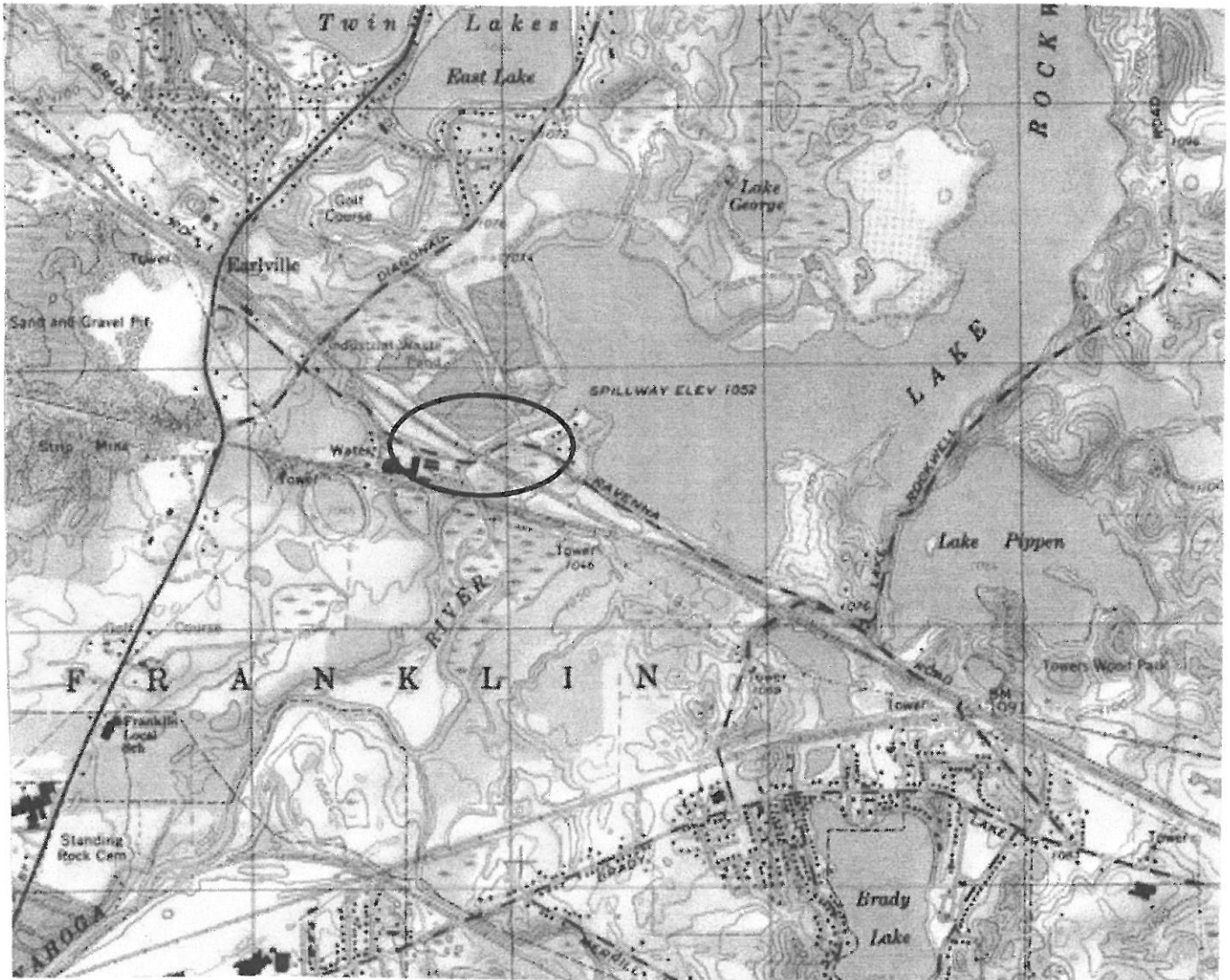


Figure 1 – Project Location

#### D. Estimated Project Costs

Akron will borrow approximately \$439,000 (chlorine dioxide feed project) and \$3,241,000 (VFD project) from the Water Supply Revolving Loan Account (WSRLA) at the standard interest rate (now 2.59%). During the 10-year loan period for the chlorine dioxide project and the 20-year loan period for the VFD project, Akron will save approximately \$831,000 by using WSRLA dollars at this rate, compared to the market rate of 3.79%.



#### E. Project Schedule

Assuming loan award in June 2013, construction will start on both projects in August and be completed within six months.

#### F. Public Notification

Akron in early 2013 posted on the municipal web page a project information notice and request for public comment for both projects and provided the same information in a media release. The City received no comments.

Ohio EPA is posting this Limited Environmental Review (LER) decision and Finding of No Significant Impact on the Division of Environmental and Financial Assistance web page and distributing it to interested parties. Information supporting the LER is available from the project contact named below.

#### G. Planning Information

The proposed project was reviewed by the Ohio EPA Division of Drinking and Ground Waters and Division of Environmental and Financial Assistance and determined to meet the respective program requirements.

#### H. Conclusion

The proposed improvements to the Akron WTP are a “minor upgrading of existing treatment works” and “construction of new ancillary facilities adjacent or appurtenant to existing facilities” that qualify for a LER and meet the following additional criteria for a LER:

*They will have no significant environmental effect, no effect on high value environmental resources, and do not require extensive specific impact mitigation* – The projects requires only minimal land disturbance to install the chlorine dioxide feed piping along the existing access drive and to construct the addition to the high-service pump building, which will be constructed over what is now mown lawn.

*They are cost-effective and not controversial* - The projects require no rate increase. Akron’s average annual residential water bill is \$356, which is approximately 1.0% of local median household income (MHI; \$34,359). This compares favorably to the state average water bill, \$529, which is approximately 1.1% of the statewide MHI. Ohio EPA is unaware of opposition to or controversy about this project that will ensure reliable water distribution in Akron.

*They do not create a new, or relocate an existing, discharge to surface or ground waters; do not create a new source of water withdrawals from either surface or ground waters, or significantly increase the amount of water withdrawn from an existing water*

*source; will not result in substantial increases in the volume of discharge or the loading of pollutants from an existing source or from new facilities to receiving waters; and will not provide capacity to serve a population substantially greater than the existing population* – These improvements merely change the location and efficiency of chlorine dioxide generation and delivery in the existing water treatment process and improve the efficiency of pumps that deliver treated water to the distribution system. The improvements alter no other aspect of the water withdrawal system or the amount of waste produced in the treatment system.

The planning activities for the project have identified no potentially significant adverse impacts. The project is expected to have no significant short-term or long-term adverse impacts on the quality of the human environment or on sensitive resources (floodplains, wetlands, prime or unique agricultural lands, aquifer recharge zones, archaeologically or historically significant sites, or threatened or endangered species).

I. For more information, please contact:

Dan Halterman  
Ohio EPA - DEFA  
P.O. Box 1049  
Columbus, OH 43216-1049  
(614) 644-3658  
dan.halterman@epa.state.oh.us